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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,192	11/29/2000	Matthew Andrews	554-250(ANDREWS 7-6-25-5	5966

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EXAMINER	
JACOBS, LASHONDA T	

ART UNIT	PAPER NUMBER
2157	9

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/726,192	ANDREWS ET AL.	
	Examiner	Art Unit	
	LaShonda T. Jacobs	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims **1-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jindal et al (hereinafter, "Jindal", 6,092,178) in view of Narendran et al (hereinafter, "Narendran", 6,070,191).

As per claim **1** and **16**, Jindal discloses a method for determining at least one best-performing content server in response to a request in a network including a plurality of content servers, at least one redirection server, and a plurality of clients, the method comprising the steps of:

- creating a plurality of client clusters, wherein each of said plurality of client clusters includes one or more clients having similar network distance properties (abstract, col. 5, lines 48-57 and col. 6, 18-27); and
- identifying said at least one best-performing content server for each of said plurality of client clusters by determining network distances between each of said plurality of client clusters and each of said plurality of content servers and selecting at least one content server for each of said plurality of client clusters having a minimum network distance there between (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46 and col. 9, lines 43-56).

However, Jindal does not explicitly disclose:

- mapping each of said plurality of client clusters to a corresponding said at least one identified best-performing content server.

Narendran discloses a server system for processing client requests received over a communication network including:

- mapping each of said plurality of client clusters to a corresponding said at least one identified best-performing content server (abstract and col. 4, lines 10-16).

Given the teaching of Narendran, it would have been obvious to one of ordinary skill in the art to modify Jindal by specifying the DNS server maps a domain name in a client request with the IP address of the appropriate server allowing the server to service a client request in timely and efficient manner.

As per claim **2**, Jindal discloses

- wherein the redirection server is an authoritative domain name (DN) server which receives said requests from a plurality of local DNS servers (abstract, col. 5, lines 20-31, lines 40-67 and col. 6, lines 44-67).

As per claim **3**, Jindal discloses

- wherein the request is a domain name (DN) request (abstract, col. 5, lines 20-31, lines 40-67 and col. 6, lines 44-67).

As per claims **4** and **17**, Jindal discloses the invention substantially as claimed.

However, Jindal does not explicitly disclose:

- the step of assigning a selection probability to each of said at least one identified best-performing content server, wherein said selection probability ensures that a

maximum service capacity of each of said at least one identified best performing content server is never exceeded.

Narendran discloses a server system for processing client requests received over a communication network including:

- the step of assigning a selection probability to each of said at least one identified best-performing content server, wherein said selection probability ensures that a maximum service capacity of each of said at least one identified best performing content server is never exceeded (abstract, col. 6, lines 37-51, col. 7, lines 40-46, col. 9, lines 25-24-53 and col. 10, lines 35-56).

Given the teaching of Narendran, it would have been obvious to one of ordinary skill in the at to modify Jindal by incorporating or implement probability rules for selecting the best server within the DNS server in order to distribute a client request to an appropriate server for servicing the request.

As per claim **5** and **18**, Jindal discloses:

- wherein the step of creating said plurality of client clusters includes the step of obtaining distance and load information from each of said plurality of content servers. (abstract, col. 5, lines 48-57 and col. 6, 18-27)

As per claims **6** and **19**, Jindal discloses wherein the step of obtaining distance information includes the steps of:

- collecting at said plurality of content servers a plurality of distance tuples wherein each distance tuple comprises one or more of the following: a network distance, a content server identifier, a time-stamp, and a client internet protocol (IP) address (abstract, col.

3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56); and

- collecting at said plurality of content servers a plurality of load tuples wherein each load tuple comprises one or more of the following: a time-stamp, a content-server ID, a client IP address, a number of hits, and a domain index (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56).

As per claim **7**, Jindal further discloses:

- the step of pulling said plurality of distance and load tuples from each of said plurality of content servers at successive data acquisition intervals and storing the plurality of distance and load tuples at said at least one redirection server (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56).

As per claim **8**, Jindal further discloses:

- the step of multiplying certain data values of said plurality of distance and load tuples by a weighting factor in each of said successive data acquisition intervals (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56).

As per claim **9**, Jindal discloses:

- wherein said network distance is computed as one of a round trip time, jitter, bandwidth and packet loss (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56).

As per claim **10**, Jindal discloses:

- wherein said round trip time is computed by monitoring all data packets transmitted and received by one of said plurality of content servers (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56).

As per claim **11**, Jindal discloses wherein the step of creating said plurality of client clusters further comprises the steps of:

- grouping distance tuples according to content server ID and CIDR prefix similarity to obtain data values for each grouping (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56);
- storing said data values at respective leaf nodes of a hierarchical tree structure wherein said hierarchical tree structure includes connected nodes including a root node and a plurality of interior and leaf nodes such that an entire CIDIR address space is represented by said root node (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56); and
- pruning said hierarchical tree structure to determine said plurality of client clusters. (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56)

As per claim **12**, Jindal discloses:

- wherein said data values stored at each of said respective leaf nodes include for at least one of said plurality of content servers; a sum of network distances, a sum of the squares of network distances, and a total number of received tuples (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56).

As per claim **13**, Jindal discloses:

- wherein the pruning step further comprises the steps of comparing sibling leaf nodes in said tree structure to determine whether there is sufficient similarity (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56);
- combining said sibling leaf nodes into a parent node if sufficient similarity exists (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56);
- repeating the comparing and combining steps if sufficient similarity exists(abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56); and
- identifying remaining leaf nodes as said client clusters if sufficient similarity does not exist (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56).

As per claim **14**, Jindal discloses the invention substantially as claimed.

However, Jindal does not explicitly disclose:

- wherein the step of mapping each of said plurality of client clusters with the corresponding, said at least one the identified best-performing content server comprises the step of assigning an assignment probability to each of said at least one identified best-performing content server.

Narendran discloses a server system for processing client requests received over a communication network including:

- wherein the step of mapping each of said plurality of client clusters with the corresponding, said at least one the identified best-performing content server comprises

the step of assigning an assignment probability to each of said at least one identified best-performing content server (abstract, col. 6, lines 37-51, col. 7, lines 40-46, col. 9, lines 25-24-53 and col. 10, lines 35-56).

Given the teaching of Narendran, it would have been obvious to one of ordinary skill in the at to modify Jindal by incorporating or implement probability rules for selecting the best server within the DNS server in order to distribute a client request to an appropriate server for servicing the request.

As per claim **15**, Jindal discloses the invention substantially as claimed.

However, Jindal does not explicitly disclose:

- wherein said assignment probabilities for each of said at least one identified best-performing content server is obtained from a flow map characterizing data flow in the network.

Narendran discloses a server system for processing client requests received over a communication network including:

- wherein said assignment probabilities for each of said at least one identified best-performing content server is obtained from a flow map characterizing data flow in the network (abstract, col. 6, lines 37-51, col. 7, lines 40-46, col. 9, lines 25-24-53 and col. 10, lines 35-56).

Given the teaching of Narendran, it would have been obvious to one of ordinary skill in the at to modify Jindal by incorporating or implement probability rules for selecting the best server within the DNS server in order to distribute a client request to an appropriate server for servicing the request.

As per claim **20**, Jindal discloses wherein said identifying means further includes:

- means for modifying said determined network distance according to the number of distance tuples received (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56).

As per claim **21**, Jindal discloses wherein said identifying means further includes:

- means for maintaining said identification of said at least one identified best performing content server for an amount of time determined by a confidence level calculation (abstract, col. 3, lines 20-37, col. 6, lines 44-67, col. 8, lines 27-46, lines 55-63 and col. 9, lines 43-56).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 6,324,580 to Jindal et al

U.S. Pat. No. 6,327,622 to Jindal et al

U.S. Pat. No. 6,304,913 to Rune

U.S. Pat. No. 6,671,259 to He et al

U.S. Pat. No. 6,665,702 to Zisapel et al

U.S. Pat. No. 6,185,619 to Joffe et al

U.S. Pat. No. 6,606,643 to Emens et al

U.S. Pat. No. 5,924,116 to Aggrawal et al

U.S. Pat. No. 6,351,775 to Yu

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaShonda T. Jacobs whose telephone number is 703-305-7494. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 703-308-7562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LaShonda T. Jacobs
Examiner
Art Unit 2157

ltj
March 16, 2004

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